

TECHNOLOGY-ASSISTED COLLABORATIVE WRITING: EFL STUDENTS' PERCEPTIONS AND PREFERRED AI FEATURES FOR LITERATURE REVIEWS

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Article Info	Abstract
Article History Received: December 2025 Revised: February 2026 Accepted: June 2026 Published: July 2026	<i>Despite technology-assisted and AI-based tools have been commonly used in supporting academic writing in English as a Foreign Language (EFL) context, particularly in collaborative learning environments, research on how EFL students perceive the use of integrated AI and collaborative platforms specifically in research-based writing, as well as which features they find most beneficial remain limited. This study fills in the gap by exploring EFL students' perceptions of technology-assisted tools in collaborative literature review writing and to identify the AI-supported features they perceive as most helpful. Employing a descriptive qualitative design, data were collected through open-ended questionnaires administered to 33 students and follow-up semi-structured interviews with six selected participants. The findings revealed that students perceived technology-assisted tools positively as they enhanced efficiency, productivity, accessibility, collaboration, and their overall perspective on academic writing. Preferred AI features included information retrieval and research support, idea generation and content development, language improvement, and collaboration support. Despite these positive perceptions, students also expressed concerns regarding ethical issues, authorship, and over-reliance on AI. The findings suggest that technology-assisted collaborative tools help students improve their research writing by supporting the writing process, developing critical thinking skills, and teaching responsible technology use. To ensure the effective and ethical use of these tools, educational policies should include clear guidelines.</i>
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INTRODUCTION

Academic writing serves as a primary indicator of successful learning outcomes in English as a Foreign Language (EFL) contexts. Unlike free or narrative writing, academic writing demonstrates students' analytical, reasoning, and critical thinking skills, enabling them to communicate and articulate ideas with clarity. Consequently, academic writing is considered an essential skill for EFL students at the university level in many countries (Ambrose & Palpanathan, 2018; Campbell, 2019; Ilyasa, 2013; Li & Razali, 2019; Xiao & Chen, 2018). Nevertheless, English academic writing presents significant challenges for EFL learners. Common difficulties include organizing references, maintaining cohesion and coherence (Mahmood, 2020), developing ideas sufficiently, acquiring an adequate academic vocabulary (Rosida & Istiqomah, 2024), and managing anxiety related to writing in English, particularly in

research-based contexts. To address these challenges, collaborative writing has been advocated as a potential solution, as it facilitates peer learning, idea sharing, and negotiation of meaning, thereby supporting the integration of relevant and coherent ideas or sentences (Anshu & Yesuf, 2022).

In recent years, digital technologies and Artificial Intelligence (AI) tools such as Google Docs, Grammarly, Mendeley, ChatGPT, and ChatPDF have become common in English academic writing. These tools provide various functionalities that support students' writing abilities, especially content quality (Khalifa & Albadawy, 2024). For example, Google Docs provides students with real-time collaboration and instant feedback; Grammarly aids students in writing with improved grammatical and coherent accuracy; and Mendeley helps students with reference document organization. Also, for other models such as ChatGPT, natural language processing (NLP) has been enhanced significantly (Kasneci et al., 2023). Therefore, ChatGPT can help students to provide answers and feedback, collect literature, synthesize ideas, develop their essays, paraphrase, and identify errors that support students to be independent learners (Sa'adah et al., 2025). These digital tools, therefore, not only make the writing process more accessible but also promote active collaboration and editing (Kurniati & Fithriani, 2022). As a result, digital tools can reduce language barriers while students engage with peers and technology in a meaningful way.

Former researchers have studied the implementation of technology-assisted tools in academic writing from students' and teachers' perspectives. Ebadi & Rahimi (2017) investigated Google Docs peer-editing on EFL students' academic writing. They discovered that Google Docs' peer-editing greatly enhanced students' academic writing skills. Bui (2022) examined digital tools usage in the classroom by EFL teachers. The results indicated that teacher-centred uses of digital technologies are predominant. To identify content-specific areas and assess their own and students' needs, teachers adopted digital tools. Teachers similarly gave their approval that the significant impact of AI writing tools is most evident in students' writing organization and content (Marzuki et al., 2023). The research conducted by Zulfa et al. (2023) analyzed the use of AI and technology in improving students' English academic writing skills. The results indicated that the tools not only helped them understand vocabulary learning and grammar concepts better but also improved their writing fluency and clarity.

Moreover, the influence of AI in English academic writing is not only in the technical area but also affects students' practices, views, and results. For instance, a study on AI's transformative power by Selim (2024) reveals that students notice an improvement in their writing quality, time management, and academic honesty. Therefore, the evidence supports the claim that AI is a co-worker, not a substitute for human writing skills. Similarly, the study conducted by Ningsih et al. (2024) reported that the use of AI tools in the learning of English language received a favorable response from students, particularly if it is backed up by institutions to optimize its use. Besides, research by Nazari et al. (2021) indicates that the cohort of students that utilized AI had a substantial increase in involvement, emotional stability, and cognitive aspect, as well as in writing self-efficacy, when compared to the group that did not use AI. Consequently, AI tools not only assist but also modify the students' perception of writing and their position as writers.

Prior studies have examined how digital technology-assisted tools significantly enhanced EFL students' academic writing, with Google Docs and ChatGPT as the primary subjects. However, academic writing demands students not only produce text but also to find, assess, organize, and cite relevant sources ethically. Using tools like AI research assistants (e.g. ChatPDF, DeepSeek, Research Rabbit) and reference management tools (e.g. Mendeley) can make it easier to find, assess, organize, and cite sources. Despite the extensive usage of these tools, limited research has explored EFL students' perceptions of technology-assisted tools in collaborative literature review writing and their preferences toward the AI-supported features.

As a results, very little is known about the perspectives, experiences, and their challenges that students have while using technology-assisted tools to support their literature review writing. Addressing this gap can provide lecturers with empirical evidence for designing instructions that encourage responsible and effective use of technology. Therefore, the purpose of this study is to explore EFL students' perceptions about using technology-assisted tools when drafting collaborative literature reviews, and the features students find most effective when using technology-assisted and AI-based tools. This study aims to answer the questions below:

1. How do EFL students perceive about using technology-assisted tools when drafting collaborative literature reviews?
2. What features do students find most effective when using technology-assisted and AI-based tools?

Academic Writing for EFL Students

It is a common consensus that writing academic texts based on research is one of the hardest skills for university students to acquire, as it entails a structured approach that obliges the students to engage with scientific sources critically. This journey consists of spotting and choosing the appropriate literature, combining several sources, providing the combined data, forming logical arguments on the basis of that data and, finally, making everything coherent. The EFL students' situation is particularly difficult as they are writing in a foreign language, thus they have to be extra careful to ensure their texts are grammatically and syntactically correct, so that their messages are not misunderstood. Numerous studies (Asnas & Hidayanti, 2024; Ebadi & Rahimi, 2017; Zulfa et al., 2023) have investigated students' challenges when composing academic texts and teachers' strategies to overcome those challenges. Asnas and Hidayanti (2024) found that writing research papers generates anxiety among EFL students, primarily because they must adjust their writing style to align with academic conventions. Their difficulty in composing academic text, particularly literature review, is conducting a comprehensive literature search, synthesizing information, and organizing ideas logically. Other aspects, such as more sophisticated structural organization, idea development, vocabulary selection, and grammatical accuracy, also become the reason for the challenge. She stated, "*When facing difficulties, students mostly use automatic coping strategies which include the use of AI.*" (Asnas & Hidayanti, 2024).

Promoting the Use of Technology and AI-based Tools in the Classroom

Technology and AI-based tools are commonly integrated into classroom activities to promote an effective teaching and learning process. These technologies help students access information, generate ideas, improve language competence, and collaborate with peers efficiently. While offering benefits, the implementation of technology and AI-based tools has raised several concerns. The sections below discuss the role of technology and AI-based tools in supporting idea generation, language improvement, collaboration support, and ethical concerns in academic writing contexts.

Previous studies have conducted research on how teachers utilize AI-powered and other technology-based tools have been increasingly utilized to assist students in generating ideas (Mahapatra, 2024; Marzuki et al., 2023; Zou & Huang, 2024). These studies also confirm how technology and AI-based tools help students understand new topics more easily and view them from broader perspectives. Furthermore, according to Zulfa et al. (2023), the students regarded AI and tech-based tools as the main supporters in writing more in-depth essays, which implied that the use of tech tools in English academic writing could lead to writing improvement for students in English.

Language Improvement

Prior studies found that technology and AI-based tools help improve students' language competence. Teachers involved in Marzuki et al. (2023) research noted that various AI tools had

positively influenced students' writing skills in the organization of content and development of ideas. Besides that, Mahapatra (2024) in his mixed-methods study supports this by stating the use of ChatGPT significantly improved ESL students' academic writing. He used pre-test, post-test, and delayed post-test measurements, and the results proved that there were substantial and long-lasting improvements in language accuracy and coherence. In the same vein, Zou & Huang (2024) found out that ChatGPT was particularly useful for L2 PhD students since it enabled them to present their arguments in a better way, especially when it came to the organization and refinement.

Collaboration Support

It has been discovered that technology and AI-based tools facilitate collaboration. Previous research about different fields of collaborative writing have identified in Google Docs task response and lexical resources as the most prominent areas of improvement. Students were divided over the extent to which they liked working together on Google Docs, yet all agreed on the platform's role in developing their English academic writing skills (Hoang & Hoang, 2024). According to Ebadi & Rahimi (2017), real-time feedback and revisions, thanks to Google Docs' peer-editing features, greatly improved students' writing skills in academia.

Ethical Concerns

Still, even though digital writing aids are being more and more used, students' acquaintance with some academic resources is not very good. Demirel (2024) mentioned that not many people even know about some tools such as Mendeley. However, this tool is actually a must when submitting articles to certain journals that are considered reputable. Since it plays a pivotal role in academic writing that is done collaboratively, it is the responsibility of the educational system to motivate the teachers to make such tools a part of their schools' curriculum so that the students gain the necessary skills of writing based on research.

RESEARCH METHOD

Research Design

This study employed a descriptive qualitative method to examine how EFL students perceive the use of technology-assisted writing tools in collaborative literature review tasks, as well as to identify which AI-supported features they find most beneficial. This descriptive qualitative design was chosen because it allows a deeper understanding of students' experiences, thoughts, and preferences that were collected previously through open-ended responses and personal reflections. As noted by Creswell and Creswell (2018), descriptive qualitative research enables researchers to study the phenomena comprehensively. Although complementary quantitative data could strengthen claims by, the present study prioritized rich narrative accounts to capture students' nuanced insights. The research focused on two key variables: 1) students' perceptions of how technology-assisted tools impact their collaborative writing practices, and 2) perceived usefulness of specific features, e.g. grammar correction, paraphrasing, and content organization. The exploratory nature of these research questions, therefore, justified the use of a descriptive qualitative method. In this regard, the data were collected after the students completed a 16-week "Academic Reading and Writing" subject. These 16-week meetings included an introduction to some technology-assisted tools for writing a collaborative literature review. Data collection was conducted through administering surveys by distributing an open-ended questionnaire to the participants soon after they completed the subject, and interviews to obtain more in-depth responses and to examine the key themes from the representative participants' elaborative answers.

Participants

The study involved a total of thirty-three (33) students in their second year of study (3rd semester), aged between 19 and 21 years old, who had completed the *Academic Reading and*

Writing subject. All students enrolled in the course (N = 36) were invited to participate in the questionnaire, resulting in a response rate of 91.7%. They all had limited experience engaging with academic journal articles but are experienced enough with digital platforms from the past coursework. However, their exposure to AI-based research tools (e.g., ChatPDF and Research Rabbit) was primarily developed during the semester.

For the interview phase, six participants were selected using criterion-based purposive sampling. The criteria are: (1) they demonstrated high performance and engagement in the classroom; (2) they maintained at least 80% attendance throughout the semester in Academic Reading and Writing subject; and (3) they achieved an A grade in both writing and grammar classes in previous semesters. This selection was intended to obtain in-depth insights from students who had actively engaged with the technology-assisted writing tasks. However, selecting interviewees based on academic achievement may restrict the findings' representativeness, since high-achieving students are more likely to have better confidence, digital literacy, and positive views about AI-powered technologies. Although this technique increased the depth of insights, the results' transferability to students with diverse academic and technical backgrounds should be interpreted with caution.

After completing the 16-week Academic Reading and Writing subject, all students were asked to fill out an open-ended questionnaire via Google Form as part of their final assignment. The questionnaire was used to collect preliminary information about the pattern of students' experiences with technology-assisted tools during the literature review writing assignments. Subsequent to the questionnaire, the researchers reached out to the six selected representatives who fulfilled the inclusion criteria for a one-on-one interview session. Prior to the interview, each student was given a consent form to read and sign, which was a way to make sure that they were freely participating in the research without any pressure being applied to them from any side, that their replies would be kept secret and would be used only for research purposes.

Instruments

The data were collected at the end of the 14-week semester (January 15, 2025) using a set of open-ended questionnaire administered via Google Forms, which the link was distributed through Google Classroom. These open-ended questions aimed to explore students' perceptions, experiences, and opinions regarding the use of technology and AI-based tools in collaborative academic writing. This format also allowed participants to express their ideas freely and provide in-depth explanations rather than selecting from predetermined options, which aligns with the qualitative nature of this study. The questions in the questionnaire were tailored to the research questions. The following table presents the list of open-ended questions that were distributed to the participants through a Google Form.

Table 1

Open-ended Questions for the Questionnaire

Item No.	Questions
1	Describe your experience and impression of using Mendeley as a citation manager.
2	Explain how you divide tasks among your group members in drafting your literature review through Google Docs.
3	Describe your experience and impression of using Google Docs for collaborative writing. What features of Google Docs do you find most useful for collaborative writing, e.g., <i>comments</i> , <i>real-time editing</i> , and <i>version history</i> ?
4	Describe your experience and impression of using AI tools for research (e.g. <i>ChatPDF</i> , <i>Research Rabbit</i> , <i>Consensus</i> , <i>Elicit</i> , etc.). How do you feel about using those AI tools in collaborative writing projects?
5	Which AI tool do you find the easiest and most useful for writing your literature draft? Explain.
6	Are there any concerns about fairness or contribution credit when using AI and Google Docs in a group setting? Explain.

Accordingly, after the participants have collected their responses, the researchers invited the six selected participants to take part in the follow-up interviews to further investigate key themes and gain a more comprehensive understanding of their perspectives. Each interview session, that lasted approximately 30-40 minutes, provided an opportunity for the participants to elaborate on their previous answers, clarify their perspectives, and share specific examples of how they used technology-assisted tools during collaborative writing. The interviewers also prepared a list of questions, which were adapted from (Hoang & Hoang, 2024; Mahapatra, 2024; Marzuki et al., 2023; Selim, 2024; Zulfa et al., 2023). This interview session allowed the researchers to ensure a more comprehensive and credible understanding of students' perceptions and practices. To ensure confidentiality and ethical compliance, interviews were audio-recorded with participants' consents and were stored on a password-protected personal device accessible only to the research team.

Data Analysis

In order to identify patterns regarding students' perception and features of technology and AI-based tools, the data from questionnaires and interviews were transcribed and analyzed in three stages, following Miles et al.'s (2014) interactive model: condensing data, displaying data, and drawing conclusions. The analysis began by repeatedly reading the questionnaire responses to be familiar with the data. Meaningful units were coded inductively for emerging themes from participants' responses. Similar codes were grouped into broader categories of students' perceptions and AI tools features. This categorization is part of thematic analysis, which served as the basis for determining the findings. Meanwhile, data from audio-recorded interviews was transcribed using *Turboscribe*, an AI-based platform that changes audio data to written data. This transcription served as complementary data that could provide richer nuance in the findings as well as strengthen the justification of the questionnaire data.

The results of data condensation were then organized into a tabular form that helps researchers organize data for convenient viewing in one location, allows in-depth analysis, and sets the stage for later cross-case analysis with other similar cases or sites (Miles et al., 2014). Only data relevant to the research questions were included in the table. To enhance credibility and dependability, data triangulation was conducted by comparing questionnaire and interview findings, and the emerging themes were reviewed through peer debriefing to ensure consistency and clarity. Furthermore, analytic notes were maintained to monitor potential researcher bias, hence supporting reflexivity throughout data analysis process.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

This study explores: (1) students' perceptions of using technology-assisted tools when drafting a literature review collaboratively and (2) students' preferences regarding specific features of these tools. Overall, the findings indicate that students perceived technology-assisted platforms as enhancing efficiency, productivity, and collaborative coordination, while also reshaping their understanding of academic writing. In terms of various features discussed, information retrieval and research support functions emerged as the most frequently valued features, followed by idea and content generation tools. To provide clarity, the findings are organized into two main sections, in which each section will correspond to each research question in sequence.

Students' Perceptions Towards Using Technology-assisted Tools in Drafting Literature Review Collaboratively

Based on the questionnaire and interview transcription, there are four major themes that can be identified regarding students' perceptions toward the impact of technology-assisted tools in drafting a literature review collaboratively. The research findings revealed that the students

perceived technology-assisted tools positively and thought of those tools, such as *Mendeley*, *Google Docs*, *ChatGPT*, *Gemini*, *Research Rabbit*, *ChatPDF*, *Consensus*, *Deep L*, etc., improved efficiency and productivity in writing a literature review, supported teamwork collaboration, made information more accessible, and changed their perspectives toward producing research-based writing.

Efficiency and Productivity

Prior to drafting a literature review, the students were trained how to cite and write references using Mendeley. Despite experiencing difficulties in registering their account, they could finally use the tool to manage their references. The students perceived that citing sources and writing references using Mendeley were more efficient and so that they could focus more on drafting a literature review.

Technology-assisted tools helped us to do a collaborative project more efficiently. A tool such as Mendeley was beneficial. We just need to save the references in a folder and Mendeley would manage them and provide us with the APA style citations. (Student 4)

Although citing and writing references were more efficient with Mendeley, the students were aware that a few errors in citation and references might appear. Thus, double-checking the citations and references is necessary. She stated:

I used AI tools when drafting a literature review collaboratively. However, I did not rely completely on AI tools since they sometimes contain errors. For example, when I used Mendeley to cite the reference, it sometimes gave incorrect citations. Consequently, my team and I had to recheck and rewrite the citation. (Student 5)

Furthermore, the students used other AI tools, including ChatGPT and Gemini, to brainstorm ideas for a literature review. Like Mendeley, they perceived these tools positively. According to the students, writing a literature review was challenging due to their limited research knowledge. They were often confused and spent too much time deciding what to write in a literature review. The use of ChatGPT and Gemini was helpful as it could provide students with clear outlines for their writing.

I used ChatGPT and Gemini to brainstorm ideas. These tools saved me time while writing a literature review. They helped me write references, read journal articles, and brainstorm ideas for writing more efficiently. (Student 1)

Additionally, other AI tools, such as Research Rabbit, ChatPDF, Consensus, and DeepSeek, were also perceived favorably by the students. They reported that these tools enabled them to find relevant articles for their literature review and improved their understanding, as the tools could provide comprehensive summaries of each part of the research articles. Despite the unfamiliarity with the research terms and complex academic vocabulary, reading the article from the AI summaries was easier as they were written using simple terms and vocabulary.

Technology-assisted tools provided me with a summary of the articles. This summary assisted me in understanding what the articles were about, even without reading the whole journal articles. (Student 2)

I like to use AI tools such as Research Rabbit, ChatPDF, Consensus, and DeepSeek to find references and read a literature review more efficiently. (Student 3)

Teamwork Support and Collaboration

The students were required to use Google Docs for drafting a literature review. Since the students are already accustomed to Google Docs, they did not experience any difficulties and even shared favorable perceptions towards the tool. Before writing a literature review, the students brainstormed ideas using ChatGPT and Gemini. Then, they found references from Research Rabbit, ChatPDF, DeepSeek, and Consensus. Next, they continued to synthesize ideas

from the references and write them in Google Docs. The results showed that using Google Docs for a literature review allowed the students to have a collaboration. They were able to view the project development in real-time and provide feedback to each other in case they noticed any discrepancies in the writing of their colleagues.

The tools supported teamwork and collaboration. The first thing we did after settling on the topic was to work together to come up with the ideas with the help of tools like ChatGPT and Gemini. Next, we used Research Rabbit, ChatPDF, and Consensus to go through the references. When we were done going through the references, we wrote the draft, monitored the progress, and conducted peer-reviewing in Google Docs. (Student 2)

Accessibility

As the students wrote their literature review in Google Docs, they could see their team's progress in writing the literature review easily. They knew which section was being revised from Google Docs feature, namely version history. Moreover, the students reported that they could share source links through Google Docs.

Writing a literature review using Google Docs enabled my team and I to give comments on each other's work. (Student 1)

My team and I have been familiar with Google Docs. While writing a literature review, we shared source links to support our writing. (Student 2)

Technology-assisted tools eased our teamwork collaboration. While drafting the literature review, we used Google Docs very often. This tool enabled us to work on our project remotely, but we could still monitor our group's progress. (Student 3)

Other technology-assisted tools, such as Elicit and ChatPDF, were also used by the students to access and understand the research paper. To use these tools, the students first needed to upload the articles. Next, Elicit and ChatPDF generated a summary of the article, which was perceived as useful in making research articles easier to understand. However, these tools also have limitations. The students perceived that the tools have limited free access. Consequently, the students needed to upgrade to the premium version whenever they wanted to access additional articles.

Technology-assisted tools, such as Elicit and ChatPDF, helped us to understand the research articles. These tools could explain what the articles are about using easier words. (Student 4)

Despite assisting us in drafting a literature review, technology-assisted tools also have limitations. ChatPDF, for example, helps us understand research articles, but it does not give us unlimited free access. We should upgrade to the premium version to upload or access more research articles. (Student 5)

Changing Perspectives in Academic Writing

The students took Academic Writing in their third semester. During this third semester, they had not taken a research course yet. Consequently, writing a literature review is challenging due to the unfamiliarity with research articles and the complexity of academic words. Despite encountering difficulties, the students completely understand that writing a good literature review requires them to read extensive number of articles to provide rich and strong arguments on their writing. Hence, they pushed themselves to read as many references as possible and used AI tools, such as Research Rabbit, ChatPDF, DeepSeek, and Consensus to help them understand the ideas of the articles easily. For writing, they were allowed to access ChatGPT, Gemini, DeepL, Google Translate, Quillbot, or any other preferred tools for generating ideas, translating, and paraphrasing their writing. They also said that the lecturer should allow students to use AI in Academic Writing and other courses. However, despite its

benefits, the students were aware that they could not rely too much on AI tools. They added that AI tools can only be used for generating ideas, translating a few words and phrases, and paraphrasing some sentences. They could not use AI for writing the complete project, translating, and paraphrasing whole sentences.

Despite the positive perception in general, several concerns emerged amongst the participants, especially on the use of AI in their collaborative writing work. Some students expressed the possibility of unfair credit distribution and authorship, especially when the group used AI-generated content and claimed it as their own, while in fact, it is the machine's. Others expressed an ethical issue, such as the possibility of plagiarism or AI detection by an academic integrity detector while they have made some modification in the final writing. Other participants also mentioned worries about their over-reliance on AI; with the massive amount of AI existences, students could not help but use them in any opportunity. They acknowledged that it might hinder the development of their own creativity, critical thinking, and language proficiency.

Although my team and I used Technology-assisted tools in writing a literature review, I am personally concerned with its usage. I am afraid that we can depend too much on AI. (Student 1)

To address these concerns, many students emphasized the importance of double-checking the AI-generated content and using the tools only for initial idea brainstorming. Overall, while students recognized the positive impacts offered by technology-assisted tools including AI, they remained aware of the need for responsible and ethical use to maintain academic integrity and personal learning growth.

Although technology-assisted tools are immensely helpful, they sometimes contain errors. Based on our experience, the journals suggested by AI are not credible. Therefore, rechecking the journal's credibility through Scopus or SINTA web address is significant before we decide to cite them. (Student 4)

Students Preferences Regarding Technology-assisted Tools' Features

Based on the data collected from the questionnaire and interviews, there are specific features of technology-assisted tools, including AI, that students think are very helpful during the process of their literature review writing. Table 1 below provides a detailed overview of the most significantly helpful features mentioned by the students, along with the tools containing each function, providing a comprehensive exposure of technology utilization in ESL research-based writing.

Table 2
Technology-assisted Tools' Features and Types

Most helpful features of technology-assisted tools	Examples/types of technology-assisted tools
Helps students find answers/information on the content of journal articles and books	ChatPDF, Elicit
Helps students find relevant sources of journal articles and books to their research ideas	Research Rabbit, Consensus, Elicit, Humata
Aids students in simplifying and summarizing complicated information	ChatPDF, Consensus
Evaluates articles	Elicit, DeepSeek
Translates and vocabulary finders	DeepL
Manages and organizes references	Mendeley
Generates ideas	ChatGPT, ChatPDF, Perplexity
Performs grammar check and correction	ChatGPT, Grammarly, GoogleDocs
Paraphrases	Quillbot, ChatGPT, Grammarly
Real-time comments for peers	Google Docs

Table 2 showed an apparent pattern of some common features of the most favorable technology tools used by the students. From the pattern, four major themes can be identified: 1) information retrieval and research support, 2) idea generation and content support, 3) language

improvement, and 4) collaboration-focused support. The data indicate that some features regarding information retrieval and research support that become the most notable features that students find most helpful. The participants stated that the technology tools they use help them find answers/information on the content of journal articles and books, find relevant sources of journal articles to their research ideas, simplify and summarize complicated information, evaluate articles, and organize references. Student 1 and student 2, for example, highlighted the practical utilization of ChatPDF, Research Rabbit, and Consensus, and how those AI tools could help her synthesize the information from more than three journal articles.

ChatPDF helped me read journals more efficiently. It gave me a summary of each research journal part. (Student 1)

I used Research Rabbit, ChatPDF, and Consensus to find journal articles. Not only finding journal articles, but these tools also helped me understand what the research was about with their useful features. (Student 2)

Idea generation and content support

In relation to drafting the literature review, students revealed how they used AI assistance to generate ideas both during the initial writing process and during the writing process. Student 3 and Student 4, for instance, had emphasized the positive impact of how Gemini and ChatGPT can stimulate ideas and offer various perspectives when she got stuck on what to write.

I used Gemini more often to generate ideas before writing a literature review. For me, the ideas generated by Gemini are informative and comprehensive - enabling me to write a literature review efficiently. (Student 3)

I used ChatGPT and Gemini to brainstorm ideas before writing a literature review. (Student 4)

Language improvement

Another developing pattern from students' answer is the issue of students' views regarding how technology-assisted tools contribute to the improvement of language use with an emphasis on grammar correction, paraphrasing, and translation of unfamiliar words. Some respondents in the survey said that they had a leaning on AI-based tools like Grammarly, Quillbot, Deep L, and Google Translate among other things to improve their sentence structure, check grammatical precision, and enrich word choice. They perceived that these tools provided immediate feedback, which enabled them to recognize and self-correct their language errors to a greater extent. Students 4 and 5 explained how their use of DeepL and Quillbot helped them identify grammatical mistakes and led them to learn through corrections. One of them stated that the AI feedback had made her more conscious of the sentence patterns and common mistakes that she had earlier ignored.

My favorite tool for grammar checking while writing a literature review is the Grammar Checker feature in Google Docs. The checker highlighted all my mistakes and even corrected the sentences on its own. Afterwards, I used Deep L to get my writing translated into English. I must say; the output of Deep L is more fluent compared to any other machine translator. (Student 4)

I usually rely on Google Translate to translate my writing into English. Then, I run my text through Quillbot for paraphrasing. (Student 5)

Collaboration-focused support

The last theme points out how the technology-assisted tools have primarily assisted the students to work together and in a more team-like manner during the writing of their literature review. The respondents said that real-time co-editing, commenting, and peer feedback through collaborative platforms and tools were the main factors that made the joint writing more interactive and coordinated.

Discussion

The findings of this study reveal students' positive perception of technology-assisted and AI-based tools while still acknowledging ethical and pedagogical challenges that remain. The current discussion relates these outcomes to past works on digital and AI-based writing (e.g., Ebadi & Rahimi, 2017; Khalifa & Albadawy, 2024; Mahapatra, 2024; Marzuki et al., 2023) and impacts on EFL teaching, learner's autonomy, and academic integrity. The findings further suggest that AI-supported tools function not merely as productivity boosters but as cognitive mediators in collaborative academic writing. Information retrieval and research support functions appear to reduce cognitive load that allow students to use greater mental resources to higher-order processes such as synthesis, argument construction, and peer negotiation. The use of Google Docs, for instance, made their writing process more productive by offering flexible access, real-time editing, and facilitating collaboration even when the collaborators were not in the same place. This finding is in line with the one made by Ebadi and Rahimi (2017), who claimed that Google Docs encourages active peer interaction and allows the learners to regulate the pace of their writing, thus leading to performance gains in writing. The integration of AI tools was also considered to ease the writing process and allow more time for proper idea development since students would be able to work very fast at the stage of generating, refining, and organizing their thoughts. AI-assisted tools come with features that, rather than simplifying difficult aspects of writing, are seen to create and contribute to producing higher-quality academic output (Švab et al., 2023).

Besides this, students noted that writing together via Google Docs and AI tools was a contributing factor in stronger sense of responsibility and involvement. The editing, commenting, and version tracking features in real time made it easier to see and participate in group work, thus leading to continuous feedback between peers and learning from one another. This tool not only promotes collaboration but also peer negotiation during the writing process (Ebadi & Rahimi, 2017; Hoang & Hoang, 2024). Likewise, Alharbi (2020) and Zhang and Zou (2022) mentioned that such collaboration not only improves learners' writing skills but also boosts their motivation and makes learning more enjoyable. Furthermore, tools like ChatGPT not only expedited task completion but also provided the opportunity for idea exchange among peers that could lead to active participation in collaborative writing (Mahapatra, 2024). In terms of accessibility, the students in this research indicated that their preferences in utilizing the tools were determined by accessibility and affordability factors. They mostly preferred tools that were free, user-friendly, and readily available; these aspects became the most influential factors for students (Selim, 2024).

In general, the participants claimed that there was a change in perception about research-based academic writing and their technology-assisted tool usage. There was a positive feeling and a growing awareness about how the technology-assisted tools and AI-based platforms could support them in the formation of ideas and paragraphs of a literature review writing. As a result, they can no longer feel difficulty in writing works that require much prior reading because they have the possibility to make use of the technology tools in reference search, idea synthesis and development, and language improvement. AI-based platforms not only increased the learners' self-efficacy but also helped them to regulate academic emotions which resulted in more confident and reflective engagement with the writing process (Nazari et al., 2021). It suggests that the technology-assisted tools transform how students conceive and approach academic writing in EFL contexts.

Regarding features of both technology-assisted tools and those that are AI-based, information retrieval and research support are the tools' most helpful and valuable features, especially during drafting a literature review. The students predominantly mentioned that using tools like ChatGPT and other AI-based platforms could help find pertinent sources' key points and even carry out synthesis of complex information which would otherwise take long time and

effort. This finding is consistent with Huang and Tan's (2023) who reported that ChatGPT could support researchers throughout the literature review processes by performing literature searches and producing brief summaries. Similarly, Khalifa and Albadawy (2024) argued that AI facilitates information synthesis and improves students' comprehension of connections among research, thus making the initial stages of academic writing and research preparation less time-consuming.

Students also acknowledged the usefulness of AI tools for idea generation and content development. Several participants stated that AI platforms helped them overcome difficulties in critical thinking and argument construction, particularly when they experienced writer's block or uncertainty in organizing ideas. This observation supports Asnas and Hidayanti (2024), who reported that students often struggle with higher-order thinking tasks, such as evaluating information and developing in-depth analyses. In this context, AI applications such as ChatGPT provided prompts, examples, and multiple perspectives that stimulated creativity and analytical engagement. Consistent with Khalifa and Albadawy (2024) and Marzuki et al. (2023), the participants recognized that such features not only assisted in generating content but also helped them maintain focus on the topic and refine their arguments, aligning with Mahapatra (2024), who found that ChatGPT effectively supports idea expansion and topical cohesion.

Language improvement was another advantage that came up frequently in the data. Students made use of AI tools such as Grammarly, Google Docs' built-in suggestions, and ChatGPT to refine grammar, vocabulary, and sentence structure. For some students, these tools are like real-time feedback devices which help enhance writing clarity and coherence. Asnas and Hidayanti (2024) found that students generally consider Grammarly as a coping mechanism tool for grammatical accuracy, whereas Ebadi and Rahimi (2017) and Hoang and Hoang (2024) reported that Google Docs help increase the vocabulary range and stylistic precision. In addition, Huang and Tan (2023) and Mahapatra (2024) highlighted ChatGPT's ability to provide not only synonyms but also paraphrase suggestions, thus leading to deeper language awareness. Likewise, Giglio and Costa (2023) and Marzuki et al. (2023) claimed that AI-based writing tutors are the major reason for the overall improvement of the text in terms of clarity, coherence, and style, thus resulting in the production of more sophisticated and professional outputs.

Finally, a real-time feature that allows dynamic collaboration and teamwork among students has turned out to be the most needed. The real-time co-editing along with targeted peer feedback was enabled by platforms such as Google Docs while generative AI models (e.g., ChatGPT, Quillbot) have become the virtual collaborative agents that provide immediate suggestions not only for content but also for the overall structure of jointly written texts (Osawa, 2023; Pramudiharjo et al., 2025). Importantly, this AI adoption supports peer interaction through scaffolding by transforming general peer feedback into specific, actionable guidance within the manuscript, a process that substantially improves the quality and efficiency of the collaborative revisions (Guo et al., 2024).

The increasing integration of AI-based writing tools, while beneficial for efficiency, simultaneously introduces serious ethical and pedagogical concerns. Among these that students acknowledged during interview is the risk is of content inaccuracy and the potential for over-reliance on automated suggestions, which can ultimately hinder the development of their creative thinking and independent critical analysis skills (Huang & Tan, 2023). Therefore, to deal with the issue, educators must address these challenges proactively by emphasizing critical evaluation and balanced integration rather than passive acceptance of AI output.

Pedagogically, the findings highlight the need for structured integration of AI tools rather than unrestricted adoption. While optimizing learning advantages, explicit training in source verification, critical evaluation of AI-generated summaries, and open authorship attribution procedures may assist maintain academic integrity. Instructors may also consider designing

guided tasks that require students to compare AI outputs with original texts, negotiate interpretations collaboratively, and justify revisions to maintain critical engagement.

CONCLUSION

This study examines how EFL students perceive the integration of technology-assisted and AI-supported tools in collaborative academic writing, specifically within the context of drafting a literature review. The findings confirm that students view these tools positively, not merely as aids, but also as transformative supports that enhance efficiency, significantly improve productivity, and reduce the considerable cognitive load associated with complex academic tasks. Collaborative platforms, such as Google Docs, demonstrably strengthened peer interaction and teamwork, while AI-based tools like ChatGPT, ChatPDF, Elicit, and Research Rabbit made challenging writing processes—including synthesizing sources, refining language, and generating ideas—more manageable and accessible.

In addition to reporting these generally positive perceptions, the study revealed distinct student preferences for specific AI features valued for their ability to offer cognitive and linguistic assistance. Students prioritized tools that assist with information retrieval and research support, provide support for idea generation and content development, improve linguistic quality and style, and facilitate teamwork and collaborative engagement. These preferences underscore the reality that AI is now fundamentally embedded in students' writing practices, making it a crucial scaffolding mechanism to navigate the challenges of research writing. Crucially, however, the data also highlighted students' growing awareness of potential risks, including concerns regarding ethical practice, authorship fairness, and the danger of over-reliance. This sophisticated perspective indicates maturity among EFL learners who can recognize that AI must serve as a complementary aid rather than a substitute for overall academic writing engagement.

Overall, this research underscores the rapidly evolving relationship between EFL students and digital technology in the academic sphere. The effective integration of AI-assisted tools is not only shown to enhance writing outcomes but also fundamentally reshapes students' attitudes toward collaboration, research engagement, and academic literacy itself. These results carry significant implications in pedagogy for educators and institutions. For educators, the findings suggest an urgent need to incorporate technology-aware writing instruction, emphasize the tenets of ethical AI use, and deliberately design learning activities that achieve a pedagogical balance between leveraging digital assistance and creating independent, critical writing skills, especially in research-based writing. For institutions, the results imply the need to revise curriculum design, assessment methods, and professional training to respond to the growing role of technology and AI tools in academic learning.

The present study also recommends that educational institutions create clear policies and guidelines regarding the ethical use of AI. Thus, future research should go beyond exploring students' practices and perceptions toward the implementation of AI tools in academic writing. Experimental studies are necessary to evaluate the efficiency of classroom interventions that promote the responsible and pedagogically aligned use of technology in academic writing. In addition, teacher training programs that equip educators to successfully incorporate AI in academic writing should be examined in future studies, as should longitudinal research to observe the impact of AI tools on students' writing competence.

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DECLARATION OF USING AI TOOLS

This study used Turboscribe, an AI-based transcription platform, to convert audio-recorded interview data into written text. All transcripts were manually reviewed and corrected by the researchers prior to analysis to ensure accuracy. Additionally, ChatGPT was used during writing process for language-editing to assist with grammar and vocabulary refinement; however, it was not used for data analysis, coding, or interpretation of findings. All research data were securely stored in folders accessible only to the research team, and participants were informed of the use of the data during the consent process.

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